

WHAT IS CLAIMED IS:

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1. A wireless mobile terminal system comprising:

a GPS receiver;

an antenna, coupled to the GPS receiver, for allowing the GPS receiver to receive GPS signals transmitted from at least one GPS satellite;

a wireless transceiver;

a second antenna, coupled to the transceiver, for allowing the transceiver to transmit signals and further for allowing the transceiver to receive signals;

10 a first coupling means, coupled to the transceiver, for obtaining a replica signal from the transceiver, the replica signal being a replica of a signal being transmitted by the transceiver;

a phase and gain adjusting means, with an input coupled to the first coupling means, for accepting and selectively conditioning the replica signal; and

15 a second coupling means, coupled to the output of the phase and gain adjusting means, for providing the selectively phase and gain adjusted replica signal to the GPS receiver, wherein the selectively phase and gain adjusted replica signal reduces interference between a transmitted signal from the transceiver and a signal received by the GPS receiver.

2. The GPS receiver system of claim 1, wherein the antenna and the second antenna are

20 a single antenna.

3. The GPS receiver system of claim 2, wherein the phase and gain adjusting means uses a feedback loop to reduce the interference between the transmitted signal from the transceiver and the signal received by the GPS receiver.

5 4. The GPS receiver system of claim 3, wherein the replica of the transmitted signal is used to cancel interference between the transmitted signal and the signal received by the GPS receiver.

10 5. The GPS receiver system of claim 4, wherein the replica of the transmitted signal is adjusted in phase.

6. The GPS receiver system of claim 5, wherein the replica of the transmitted signal is shifted in amplitude.

15 7. The GPS receiver system of claim 6, wherein the phase shift of the transmitted signal and the amplitude shift of the transmitted signal are controlled by a received signal strength indicator.

20 8. The GPS receiver system of claim 7, wherein the combining circuit further comprises an adaptive circuit.

9. The GPS receiver system of claim 8, wherein the adaptive circuit minimizes long-term drift effects.

10. A method for reducing interference in a Global Positioning System (GPS) receiver that shares an antenna with a transceiver, comprising the steps of:

replicating a first transmission of the transceiver, wherein the first transmission of the transceiver emanates from an antenna receiving GPS signals;

5 coupling the replicated transmission into a front end of the GPS receiver; and  
at least partially canceling the first transmission using the replicated transmission.

11. The method of claim 10, wherein the partial cancellation is performed using a feedback loop.

10 12. The method of claim 11, wherein the feedback loop uses a replica of the transmitted signal.

13. The method of claim 12, further comprising phase shifting the replicated signal.

14. The method of claim 13, further comprising amplitude shifting the replicated signal.

15 15. The method of claim 14, further comprising controlling the phase shifting of the replicated signal and the amplitude shifting of the replicated signal by using a received signal strength  
20 indicator.

16. The method of claim 15, further comprising minimizing long-term drift effects.

17. The method of claim 16, wherein the minimizing of long-term drift effects is performed by an adaptive circuit.